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ABSTRACT

Adaptive behavior is defined as the degree to which individuals are able to function and maintain themselves independently, and meet the culturally imposed demands of personal an social responsibility. In 1969, the American Association on Mental Deficiency sponsored the development of the Adaptive Behavior Scale to provide a comprehensive assessment of adaptive behavior. This scale was designed to be used in conjunction with intelligence tests for the diagnosis and placement of retarded school age children. The Public School Version of the scale was published in 1974. This report summarizes the research on the Public School Version which was conducted subsequent to its publication. This supplemental information includes reports of additional studies of the validity of the scale, information on domain score reliabilities, and the relationship of IQ to domain scores. In order to assist users in the application of the scale to decision making and to the development of individual education plans, this supplement also provides information about the dimensionality of the scale and samples of Adaptive Behavior profiles which can be prepared to aid in interpreting the results. The author concludes that the scale, as part of a comprehensive case study, can provide invaluable information for improving adaptive behavior, and for assessing intellectual functioning. (Author/BW)

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Field Study of the Efficacy of the AAMD Adaptive Behavior Scale - Public School Version

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Supplement to the Manual for the Public School Version of the AAMD Adaptive Behavior Scale 1974 Revision

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Substudy 1 of 5

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Supplement to the Manual for the Public School Version
of the AAMD Adaptive Behavior Scale 1974 Revision

Abstract

This report summarizes research on the Public School Version of the Adaptive Behavior Scale which was conducted subsequent to the publication of the first version of the Scale in 1974 and 1975. This material is intended to be a Manual supplement.

The supplemental information summarized in this report includes reports of additional studies of the validity of the Scale, information on domain score reliabilities and the relationship of IQ to domain scores.

In order to assist users in the application of the Scale to educational decision making and developing individual education plans, the Manual Supplement also provides information about the dimensionality of the Scale, and samples of Adaptive Behavior profiles which can be prepared to aid in interpreting the results.

Foreward

The study reported here was part of a program of research in Special Education by Nadine M. Lambert.

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This substudy of the grant is reproduced here in this form for distribution as a technical report under the grant, and in order to make complete findings available for others engaged in this research area. Results of this study are the sole responsibility of the investigator. Official endorsement of the California State Department of Education is not implied.

Table of Contents

Background	1
Development of the Public School Version	3
The Pilot Phase	3
Teachers or Parents as Reporters of Adaptive Behavior	4
Appropriateness of the Adaptive Behavior Scale in Public Schools	5
Validity and Reliability of the Public School Version	6
The Standardization Population	6
Item Validities of the Public School Version	7
Domain Validities of the Public School Version	8
Reliability of the Scale	15
Relationship of Domain Scores to IQ	16
Application of the Results of the Public School Version of the Adaptive Behavior Scale to Educational Programming	17
The Dimensions of Adaptive Behavior	20
Determining the Level of Adaptive Behavior	21
Developing Individual Educational Plans from the Assessment of Adaptive Behavior	29
Educational Planning Considerations Regarding Part One Domains	31
Matching Educational Planning Recommendations on Part One Domains to Available Curricula	33
Educational Planning Considerations Regarding Part Two Domains	34
Evaluation of Individual Educational Plans	34
Conclusion	35

List of Figures

1. Profile Summary AAMD Adaptive Behavior Scale Part One Using Regular Norms 22

2. Profile Summary of AAMD Adaptive Behavior Scale Part Two Using Regular Norms 25

3. Profile Summary of AAMD Adaptive Behavior Scale Part One Using EMR Norms 27

4. Profile Summary of AAMD Adaptive Behavior Scale Part Two Using EMR Norms 28

Background

Many of those involved in the education of mentally handicapped children incorrectly believe that until landmark litigation (Charles S. v. Board of Education, San Francisco; Larry P. v. Riles; Diana v. California State Board of Education) challenged procedures for placement of mildly mentally retarded children in special classes, recommended practice was to use only intelligence tests to determine eligibility. However, handbooks for assessment of children to determine eligibility for placement in special programs were available to assist psychologists in the diagnostic process shortly after the passage of enabling legislation in California (1947-1948) which permitted school districts to recover the excess costs of educating mindly retarded children.

In addition, guidelines such as those published by the State Department of Education (Daly & Henderson, 1959) detailed a wide variety of information which was to be integrated into the case study, such as psychometric examination, educational examination, social history, developmental history, family history, and physical examination.

While the assessment of social development, social history, or social functioning was intended to appraise aspects of the child's independence, social maturity, and interpersonal skills which we now refer to as adaptive behavior, the term adaptive behavior was not used until the publication of the 1961 AAMD Manual on Terminology. Adaptive behavior was defined there as: (1) the degree to which individuals are able to

function and maintain themselves independently, and (2) the degree to which they meet satisfactorily the culturally imposed demands of personal and social responsibility.

Once adaptive behavior was explicitly defined, the task of developing reliable and valid tools for assessing this area of social functioning was undertaken by a team working for the American Association on Mental Deficiency in Kansas. The item development and validation procedures (Nihira & Shellhaas, 1970) consisted of analyzing the relationship between ratings of independently derived estimates of adaptive behavior and selected items while controlling for the contribution of intelligence. Initially, many of the several hundred items which were tried out were eliminated because they did not correlate with adaptive behavior assessment or because they were simply proxies for intelligence. As new items were written, evaluated, and contrasted with one another, a scale measuring adaptive behavior as independent as possible from measured intelligence began to emerge. Part One of the first edition of the Scale consisted of 10 domains assessing adaptive behavior in areas such as economic activity, self direction, responsibility, and independent functioning.

As the scale development proceeded, Nihira and his co-workers realized that another aspect of adaptive behavior had been ignored in the item development of Part One. This aspect of adaptive behavior reflected the degree to which an individual could meet the demands for appropriate behavior in the school and community setting. The items for development of Part Two of the Scale came from a study of critical incidents produced by teachers and community and residential workers and reflected behaviors which, if present to a great extent, would make it impossible for the individual to remain in the environment. Item analysis proceeded in a

similar fashion as for Part One and resulted in the creation of 14 behavior domains useful in appraising social-emotional adaptational problems. The 1969 edition of the Scale (Nihira, Foster, Shellaas & Leland, 1969) provided a comprehensive assessment of adaptive behavior, which included items measuring self-reliance and social development (Part One), with appraisal of social adaptation relying on the nature of the individual's affective characteristics (Part Two).

Development of the Public School Version

Early in the 1970's, in response to concern over appropriateness of measures employed to assess intellectual development and adaptive behavior, a team at the University of California, Berkeley, which included this author, investigated the appropriateness and validity of a wide variety of procedures for diagnosing mild mental retardation. The results of our extensive review of the literature and our recommendations for assessment practice (Lambert, Wilcox, & Gleason, 1974) included a review of methods for assessing adaptive behavior. Our inquiry determined that the AAMD Adaptive Behavior Scale was the best available, most carefully developed tool for assessing behavior associated with the standard definition of adaptive behavior and the best available for use with school age children. The Scale, however, had not been evaluated for its appropriateness in a public school setting and before recommending its use, we conducted pilot, feasibility, and standardization studies of the Scale with normal and handicapped pupils attending public school.

The Pilot Phase

The first step was to evaluate the range of item values obtained in a public school population and to determine whether parents or teachers would be the most appropriate reporters of children's adaptive behavior. We

studied item scores and determined that the score ranges were adequate for an elementary school population. We gathered reports from parents and teachers and could find no significant differences between their ratings whether the population was regular or mildly retarded children. We examined score differences attributable to sex and ethnic status and found that any systematic effects attributable to these factors were minimal. The consequences of the pilot phase led us to proceed with a broader-based feasibility study and to use teachers as reporters of the adaptive behavior functioning of school children in a standardization project.

Teachers or Parents as Reporters of Adaptive Behavior

The decision to use teacher judgments of adaptive behavior rather than those of parents in the standardization rested on: (1) the desire to involve teachers in the assessment process because ultimately they will be relied upon to provide educational programs for exceptional children, (2) the relative economy of teacher-supplied data because parents are often difficult to reach, and (3) the potential reliability of teacher reports.

To study further any potential discrepancy between teacher and parent reports we obtained independently a sample of 200 mildly and moderately retarded children from white and Spanish-speaking backgrounds. The results of this substudy have been completed, and Cole (1976) showed that there were no significant differences between parent and teacher ratings regardless of the sex or ethnic status of the child. Thus, though the standardization data were collected from teachers, the Scale is applicable as well for use in interviewing parents about the adaptive behavior status of their children or in training parent groups about adaptive behavior concepts, after which they can complete a rating of the child independently just as the teacher does. Ratings from both parents and teachers provide

a good basis for comparing the child's functioning in these two environments and in turn produce an excellent set of data for planning home and school activities to promote development.

We realized that for some items and for some children teachers might not know their pupils well enough to provide accurate evaluations of their adaptive behavior and would need parental assistance.

Appropriateness of the Adaptive Behavior Scale in Public Schools

In the early phase of our work educators and psychologists expressed concern about the appropriateness of items reflecting social incompetence in the appraisal of children's functioning in the school setting. To assess the range of adaptive behavior functioning over the entire spectrum from incompetence to competence, and from total dependency to independence, requires items reflecting a wide range of social functioning. Two types of information provided evidence on the appropriateness of the item content for ratings of school behavior.

The first test of school appropriateness centered on determining whether teachers had enough information to rate children on the items. In our instructions to teachers we asked them to indicate whether they had an opportunity to observe the behavior of the child who was being rated. If the teacher had not observed exactly the same behavior, but had observed similar behavior, we asked the teacher to infer the appropriate rating and to put an "I" opposite the rating. When teachers had not had an opportunity to observe similar behavior and had to make a guess based on their general knowledge of the pupil, they placed a "G" opposite the rating. From counts of the frequencies of "I's" or "G's" for each item, we had an empirical test of the degree to which teachers considered the item to be appropriate.

The second feasibility test came from data provided by special education, pupil personnel, and research staffs of participating school districts. Each staff member reviewed the Scale and indicated those items which he or she believed were impossible for teachers to rate or which were inappropriate to the school setting.

The combination of information from teachers and staff specialists provided a basis for deciding whether to retain items for the public school version. The Domestic activity domain was deleted from Part One of the Scale and the nine remaining domains were retained. On Part Two the domains of Self Abusive behavior and Sexually Aberrant behavior were deleted, but the remaining 12 domains were judged to be appropriate.

Validity and Reliability of the Public School Version

The Standardization Population

The elementary school population which served as subjects in the feasibility and standardization studies of the Public School Version of the Adaptive Behavior Scale (Lambert, Windmiller, & Cole, 1975; Lambert, Windmiller, Cole, & Figueroa, 1975 a, b) was defined on the basis of six school and demographic variables. These were (1) class placement: regular, EMR (educable mentally retarded), TMR (trainable mentally retarded), and EH (educationally handicapped); (2) age: children enrolled in second through sixth grade; (3) sex; (4) population density of residence; (5) socioeconomic status: census tract data on percentage of unemployment and average education level; and (6) ethnic status: black, white, Asian, and Spanish-speaking background. The proportion of pupils with the above characteristics in each school district in the state were evaluated using statewide school census information, and schools representative of the state's population characteristics were identified.

A population of 2,800 children was selected, with the objective of sampling approximately equal numbers of regular and EMR subjects and smaller representative samples of TMR pupils and those assigned to programs for the educationally handicapped.[1] We also sampled equal numbers of males and females and an equivalent distribution of subjects in the major ethnic groups. The objective of the sampling procedure was to produce representative groups of male and female children from different ethnic backgrounds in the selected age range in the several classification groups rather than to identify a representative school population in which children in the special education categories were selected as a proportion of the total school population which these classifications represent.

We also examined the appropriateness of the placements of the EMR pupils in our standardization population. The data for the California study were collected in 1972, several years after the Diana v. California State Board of Education consent decree required school district reports of the ethnic representation in special education programs and a year after the state legislature required a reevaluation of all pupils in programs for the EMR. These actions supported our confidence in the appropriateness of the placements of the EMR subjects. To affirm, additionally, the status of the EMR pupils, we analyzed the IQ distributions of these pupils at the conclusion of the data collection. These analyses showed that only 4, 3, and 3% respectively of the white, black, and Spanish background subjects had an IQ score higher than two standard deviations below the mean and that they would have met the eligibility criteria which were defined in Education Code statutes then in effect.

Item Validities of the Public School Version

The Manual (Lambert, et al., 1975) of the public school version of

the Scale (pp. #41-42) presents the findings of the item validities (for all items including those deleted from the public school version) for predicting adaptive behavior as inferred from school classification status controlling for sex and ethnic status. We determined the significance level of the partial correlations of item score, with classification status defined as regular or EMR school placement. We considered the relationship of item values to EMR and regular class status to be a more definitive test of item validity than the correlation of scores with regular and TMR status or with EMR and TMR status. In general, these analyses showed that 80 to 90% of the Part One items were significantly related ($p < .01$) to classification status from ages 7 through 12, and that 20 to 75% of the items on Part Two were equally as valid. We expected to achieve a greater degree of relationship between level of adaptive behavior (inferred from school classification) and items on Part One than those on Part Two. Part One assesses independence and responsibility functions associated with adaptive behavior while Part Two assesses problems in social-emotional functioning which are not restricted to individuals with evidence of mental retardation. In general, however, the number of valid items increased with age on Part Two, suggesting a greater extent of behavior disorders as EMR children grow older.

Domain Validities of the Public School Version

Our analysis of the validity of the domain scores (Lambert, in press) included simultaneously an analysis of the unique contribution of school classification, sex, and ethnic status to the scores. We conducted identical analyses for nine domains of Part One and 11 domains of Part Two for all age groups in the sample. We did not include the educationally handicapped sample in these analyses but centered our efforts on determining whether

differences in domain scores were associated with regular and EMR status.

Multiple regression procedures (Cohen, 1968; Darlington, 1968) make possible inferences regarding the significance of variance attributable to a variable when the effects of other variables of interest are accounted for. We analyzed (1) the unique variance attributable to adaptive behavior level as inferred from classification status when the variance attributable to sex and ethnic status were accounted for, (2) the unique variance attributable to sex accounting for the variance attributable to ethnic status and classification, and (3) the unique variance attributable to ethnic status accounting for the variance attributable to classification and sex.

Details of the results of these extensive multiple regression analyses are presented in Lambert (in press); hence, only a summary of the analyses will follow. Classification status was significantly associated with Part One domain scores for ages 7 through 12 for all domains with the exception of a nonsignificant contribution at age 8-9 on Vocational Activity. Thus, in 45 analyses of the predictive validity of the scale only one failed to reach an alpha level of $<.01$. Similarly, on Part Two domains the .01 level of significance was not obtained in only 10 of 60 analyses. The findings extended those from the item analyses and demonstrated that differences in domain scores based on the Public School Version are very highly associated with the classification of regular and EMR pupils and can be considered valid for differentiating regular class pupils from those assigned to EMR programs.

The multiple regression analyses of the unique contribution of sex to domain score showed that sex made no significant contributions at any ages on the Physical Development, Economic Activity, and Language Development

domains. On the domains of Independent Functioning, Numbers and Time, Vocational Activity, Self Direction, and Socialization, sex contributed significantly at one age level only, either for ages 8-9 or 9-10. Where sex differences occurred on the Responsibility domain, one can tentatively account for them as differences in sex role demands made on boys and girls.

Differences in socialization practices for boys and girls most likely explain the somewhat greater influence of sex on Part Two domain scores. After accounting for the variance in scores associated with classification and ethnic status, sex was significantly associated with Part Two domain scores in 19 of 60 analyses. Girls, for example, were judged to be less destructive and nonconforming than boys. Girls were also considered to be less hyperactive than boys at all age levels. In order to provide sufficient reference material for appropriate interpretation of the domain scores, the Manual provides norms for boys and girls as well as the total sample in each and classification group for the Part Two domains. One cannot generalize from these findings, however, and state that there is an unwarranted sex bias in the scores. The domains on which there were differences attributable to sex reflect behaviors which boys and girls acquire differentially as a result of different standards for socialization; therefore, the results can be assumed to reflect the behavioral expectancies of families and community, rather than inherent differences between males and females.

The increment of variance associated with ethnic status on Part One on the Scale was significant in only one of 45 analyses. The inference follows that ethnic status does not contribute to domain scores when the effects of classification are accounted for on Part One of the Scale. Similarly on the Part Two domains, ethnic status contributed significant, unique variance to the scores in 12 of 60 analyses and only at two or

three of five age levels on the Rebellious Behavior, Untrustworthy Behavior, and Anti-Social Behavior domains. We interpreted these few significant contributions to be a reflection of different cultural demands which are reflected in maladaptive interpersonal behavior, which in turn influenced ratings assigned to the items of the Anti-Social and Untrustworthy Behavior domains. Similarly, rebellious behavior manifest in response to authority, diligence in following instructions, and punctuality is a function of the pupil's classification status, as well as the ethnic group to which s/he belongs.

Even though the contribution of ethnic status to Part Two domain scores was significant for only three of 12 domains, we considered these results important enough to prepare additional norms by ethnic status for the public school version. These norms, along with the norms for the total sample and those by sex, provide the user with reference groups sufficient for adequate and fair interpretation of the results.

The remaining variables by which subjects were identified in the study were population density and socioeconomic status. When each of these measures were correlated with domain scores, controlling for the effects of class placement, sex, and ethnic status, there were, in a practical sense, no significant results. There were only two correlations which were significant at the .01 level on Part One of the Scale, and no correlations which were significant at this level of Part Two over all of the analyses of the contributions of these demographic and social status variables.

On the basis of the data reported in the study, we concluded that the Scale was valid for differentiating between pupils assigned to regular and EMR classes from ages 7 through 12. These analyses did not answer an

additional important question as to whether the mean scores for children within a classification group at each age level were the same. Accordingly, Cole (1976) undertook a multivariate analysis of variance of the data collected for the regular, EMR, and TMR subjects. As one would expect from the multiple regression analyses which were reported, mean scores for the three classification groups at each age level were very significantly different. The variance in scores explained by age and classification status ranged from 8 to 39% for the Part One domains and from 2 to 10% on the Part Two domains. The mean scores for regular class subjects on Part One domains were always higher than those for EMR pupils, which in turn were always higher for children in TMR classes. For Part Two domains, children in regular classes always had lower scores, indicating better adaptation for all domains. The mean scores of EMR subjects on Part Two domains, however, were not always indicative of more adaptability than those of TMR subjects. For example, EMR subjects manifested a greater extent of maladaption on the domains of Anti-Social Behavior, Rebellious Behavior, Untrustworthy Behavior, Hyperactivity, and Psychological Disturbances. TMR subjects, on the other hand, had higher, more negative scores on Withdrawal, Stereotyped Behavior, Inappropriate Manners, Unacceptable Vocal Habits, and Unacceptable or Eccentric Habits. Additional study of the interaction of level of intellectual functioning and manifestations of emotional disturbance of these several types can shed light on the diagnostic significance of these findings.

The findings from the multiple regression analysis showed that there was essentially no contribution of sex and ethnic status to Part One domains when we controlled for classification status. Similarly, Cole's data showed that there was neither a significant sex nor ethnic status effect within

the groups of EMR and TMR subjects. There were, however, small though significant differences in means (ranging from 1.3 to .07 raw score points) between ethnic groups on six of nine domains. Even though small differences can be significant in large samples such as those used in these studies, only 1 to 2% of variance was explained by cultural factors. The contribution of ethnic status to scores of regular class pupils is minimal. There were no differences among ethnic groups on Independent Functioning, Physical Development, or Vocational Activity. An examination of the mean scores over all subjects showed, for example, that the differences benefited no particular ethnic group. For example, the Spanish background subjects had higher scores on Responsibility, Socialization, and Economic Activity; the black subjects scored higher on Independent Functioning; and the white subjects were rated higher on Language Development, Number and Time Concepts, Vocational Activity, and Self Direction. While cultural factors may be a factor in adaptive behavior functioning represented by the Part One domains, we can conclude from the data reported here that there is no systematic bias in the scores which would favor one or another ethnic group.

There were significant differences between means for classification groups on all domains of Part Two of the Scale. The variance explained by classification status and age varied from 2 to 10%. Differences between means of ethnic status groups were significant for 6 out of 12 domains for regular class subjects, for 4 of 12 domains for EMR subjects, and for 3 of 12 domains for the TMR pupils. The variance explained for the ethnic status variables ranged from 1 to 2%. Since norms for different ethnic groups within classification and age are available in the Manual, Psychologists and others who use the Scale have appropriate reference material to interpret results, taking into account, when appropriate, differences

in functioning which might be attributable to cultural factors.

Mean differences between domain scores for boys and girls were not significant for pupils assigned to EMR and TMR classes. There were, however, four domains on Part One where regular class boys and girls were judged to have significantly different levels of adaptive behavior. The difference in means was about one raw score point and the explained variance was from 1 (3 domains) to 3% (Responsibility domain). Sex was only 1%. The Responsibility domain was the only one to which sex made a significant contribution after controlling for classification status in the multiple regression analyses indicating that EMR and regular class females function at a slightly, but significantly higher level than their male peers on the items assessing Responsibility.

On the basis of the findings summarized from these studies, we concluded that the Scale was valid for differentiating among pupils assigned to regular, EMR, and TMR classes from ages 7 through 12. Even though our data show that the Scale provides a valid measure of adaptive behavior, we do not mean to imply that all children with scores in a critical range necessarily should be classified as retarded. The obtained scores must be compared with other information, contrasted with reports from parents and other observers of the child, and integrated into and evaluated as part of a comprehensive case study.

Our research supports the assumption that Part One domains reflect behaviors which are acquired by both boys and girls similarly across the three major California ethnic groups which were represented in the study. The small differences between means within the regular class population indicate that the user of the scale must always exercise caution in interpreting the results of adaptive behavior assessment, just as care would

be required in interpreting the results of other tests. One must always be sure that the child has had sufficient opportunity to acquire the skills or competencies being measured in the preparation of an interpretation of test findings. Our data show further that children who were assigned to EMR and TMR programs were significantly different with respect to adaptive behavior, and that within these classifications boys and girls from different ethnic groups had, on the average, similar levels of adaptive behavior. One can infer from such a result that the groups of EMR subjects from the school districts which contributed to these studies were eligible to be classified as mentally retarded based on the criteria of retarded intellectual and adaptive behavior functioning.

Reliability of the Scale

Information to assess the internal consistency reliabilities of the domain scores was available from the data collected in the standardization studies. We determined that the reliabilities of Part One domain scores varied from .70 to .92, with a mean of .88. Reliabilities of the Part Two domains varied from .80 to .92, with a mean of .87. These reliability estimates can be contrasted with the interrater reliabilities reported in the 1974 revision of the Scale (Nihira, Foster, Shellhaas, & Leland, 1974). The range of interrater reliabilities for Part One domains was from .71 to .93, with a mean reliability of .86. For the Part Two domains the Manual reported the reliabilities to range from .44 to .77, with a mean reliability of .57. Unless two raters have equal opportunity to observe an individual, which is rarely the case, raters observe subjects under different environmental circumstances. Differences in environmental demands, in part, explain the somewhat lower average interrater reliabilities reported when compared with the internal consistency estimates.

Relationship of Domain Scores to IQ

A logical question to raise about the data from administrations of the Adaptive Behavior Scale is whether domain scores are simply proxies for intelligence. The subjects for these studies were selected on the basis of their school classification, but not necessarily on the basis of meeting a specified measured intelligence criterion. We combined the regular and special education subjects and computed the correlation between domain scores and reported IQs. The findings showed that on Part One domains over the age range of subjects, the magnitude of the relationship ranges from about .10 (Vocational Activity, Self Direction, and Responsibility) to about .60 (Number and Time Concepts, Economic Activity, and Language Development). The correlation between IQ and Part Two domains ranged from -.01 (Destructive, Non-Conforming) to -.21 (Withdrawal, Stereotyped Behavior). There was considerable variation in the relationship of IQ to specific domain scores over the age range of subjects, suggesting differing patterns of development of these social and intellectual attributes. Nevertheless, the magnitude of these correlations informs us that this measure of adaptive behavior and measured intelligence share a low to moderate amount of variance attributable to a common underlying factor which we infer to be level of general development.

In concluding this discussion of the validity and reliability of the Public School Version it is important to point out that the item development phase (Nihira et al., 1970) made no attempt to eliminate items on which males and females or individuals of different socioeconomic or ethnic status groups performed differently. The outcomes of our studies of the contribution of sex and ethnic status to item and domain scores illustrate variations in adaptive behavior functioning of subjects grouped by sex and

ethnic status as measured by items selected to assess an independently derived adaptive behavior criterion. The fact that the results of our studies show no consistent ethnic status or sex contributions to domain scores on Part One of the Scale make it possible to infer that differences in adaptive behavior assessment on this Scale reflect real differences in adaptive behavior functioning and provide assessment of adaptive behavior that can be applied fairly to boys and girls and to children of different ethnic groups. The provision of additional norms by sex and ethnic status for Part Two of the Scale ensures that users of the Scale will have reference material to make fair and appropriate interpretation of the child's level of functioning on domains to which sex or ethnic status made occasional significant contributions.

Application of the Results of the Public School Version of the Adaptive Behavior Scale to Educational Programming

The validity and reliability data from our studies of the adaptive behavior of public school children support the fact that the Adaptive Behavior Scale measures a wide range of levels of adaptive behavior of normal and handicapped children who are attending school. It seems reasonable to conclude that domain scores can provide essential information both for determining eligibility of children for placement in programs for mentally retarded pupils and for developing educational plans to promote children's development.

Federal and state guidelines for programs for handicapped children require that children be assigned to the least restrictive environment for learning. In the near future it is likely that the requirement of a diagnosis of mild retardation such as now required to identify a child for programs for the educable mentally retarded will be replaced by descriptive statements

of individual differences of children which specify the degree of need for special education attention and which can be used as the basis for development of educational plans.

Whether or not diagnoses of mental retardation will continue to be required as a condition of delivery of special education services to educable mentally retarded children, it is instructive to note that children who are eligible under existing California Educational Code provisions for EMR programs are children who are defined as academically retarded, and evidence of clinical factors associated with the condition is not required for diagnosis. In the medical history of those diagnosed as moderately or severely retarded, such as individuals in TMR programs, one would expect to find relevant clinical factors which account for the condition, such as those resulting from infections, metabolic disorders, trauma, gross brain disease, unknown prenatal influences, chromosomal abnormalities, or gestational disorders (Grossman, 1973). The California Education Code defines mildly mentally retarded pupils as ones who "because of retarded intellectual development as determined by individual psychological examinations are incapable of being educated profitably and efficiently through ordinary classroom instruction." The evidence of the child's handicap is failure in school which is a result of differences in rate of development. Children who are eligible for placement in EMR programs therefore, would not necessarily be children whose functioning would be judged to be retarded in the community or home environment. The Code presently states that a child's eligibility for such programs be determined by a case study which includes a measure of his intellectual functioning and adaptive behavior. The psychologist who is required to determine the eligibility of children for programs for the educable mentally retarded knows full well that he can

never state with finality that such a child is "mentally retarded." On the basis of individual psychological examination the psychologist can state only that a child is "eligible" for the special education program and provide some indication of the probability that the child's performance will remain within specified limits suggested by the errors of measurement of the measures of intelligence, adaptive behavior and other assessment methods which the psychologist employs. The cause of the academic retardation of educable mentally retarded children is likely to be unknown, may have a clinical basis, but in all probability can best be understood as a manifestation of individual differences in rate of cognitive and social development. The task for the psychologist is to assess the present intellectual and social developmental status of the child, contrast his/her findings with supportive and contradictory evidence in the case history, and determine whether the child, at the time of referral and appraisal, needs and is eligible for special education assistance, and if eligible, what types of educational experiences will be most beneficial.

The shift away from diagnoses of etiologies of handicapping conditions and toward educational planning is a major positive trend in school psychology and special education. We have always known that simply categorizing or labeling children and assigning them to special programs would not guarantee continued developmental progress. We may have found ourselves spending more of our energies on diagnosing and placing than on developing educational plans because the evidence provided from most diagnostic tools is not easily adapted to educational recommendations. Even though competent psychologists never assume that the totality of an individual's intellectual potential can be represented by a single score, some have become trapped in a single score mentality when they have employed the IQ measure as the locus of

individual functioning. Similarly, if we reduce the wide variety of individual differences in adaptive behavior functioning to a single score, we encourage the same kind of simplistic assumptions about adaptive behavior as we have encouraged in summing up a child's intellectual functioning in the IQ.

The Dimensions of Adaptive Behavior.

The available data from several studies (Nihira, 1969a; Nihira, 1969b; Lambert & Nicoll, 1976) provide no basis to conclude that adaptive behavior is a single, unitary characteristic of individual functioning. Rather, the dimensionality of adaptive behavior as measured by the items and domains of the Scale can be defined by four clusters of domains describing (1) functional autonomy (Independent Functioning, Language Development, Economic Activity, Number and Time Concepts, and Vocational Activity, (2) Social Responsibility (Self-Direction, Responsibility, and Socialization, (3) Interpersonal Adjustment (Destructive Behavior, Anti-Social Behavior, Rebellious Behavior, Untrustworthy Behavior, and Psychological Disturbances), and (4) Intrapersonal Adjustment (Stereotyped Behavior, Inappropriate Manners, and Unacceptable Vocal Habits). The first two dimensions closely parallel the definition of adaptive behavior as comprised of those attributes necessary for maintaining oneself independently and functioning in a personally and socially responsible manner. The second two dimensions are associated with sociobehavioral adjustment factors which indicate the degree to which the individual will be able to meet the environmental demands of the school environments.

The Public School Version of the Adaptive Behavior Scale provides data expressed as an individual's percentile rank compared with age and classification peers. The results are valuable for the dual purposes of

(1) determining the child's level of adaptive behavior as inferred from performance on the domains associated with the functional autonomy and social responsibility dimensions and (2) evaluating the potential for successfully meeting environmental demands of regular and special education classrooms based on evidence of social-emotional maladaptation.

Determining the Level of Adaptive Behavior

The Manual for the Public School Version of the Adaptive Behavior Scale provides norms for regular, EMR, TMR, and EH subjects from ages 7 through 13, and additional norms for sex and ethnic status for Part Two of the Scale. Data collected in a large scale field study conducted by the Florida State Department of Education (Note 1, Note 2) provide additional norms for subjects from 3 through 16. The Florida data will be compared with data presently being studied on groups from 3 to 7 and from 13 to 16 and within a year, normative data on the Public School Version will include norms from ages 3 through 16 based on the combined data.

After teachers have been trained to use the Scale (Windmiller, 1977) and have completed their ratings, domain scores are computed for each child and checked for accuracy before an individual profile of adaptive behavior is developed. Figure 1 illustrates an adaptive behavior profile for a child who was referred for special education. The raw scores earned on each Part One domain are listed at the bottom of each column for the domain scores. Because the question being asked was whether the child's level of adaptive behavior was low enough to warrant consideration for special education placement, his/her profile of percentile ranks was drawn to reflect his/her position with respect to peers of the same age in regular class programs. Percentile ranks for regular class subjects for each raw score were plotted on the profile, and they were at or lower than

Identification E.F.G. using regular class norms

Age 9 years 6 months

Sex Male

Date of Administration 1-25-77

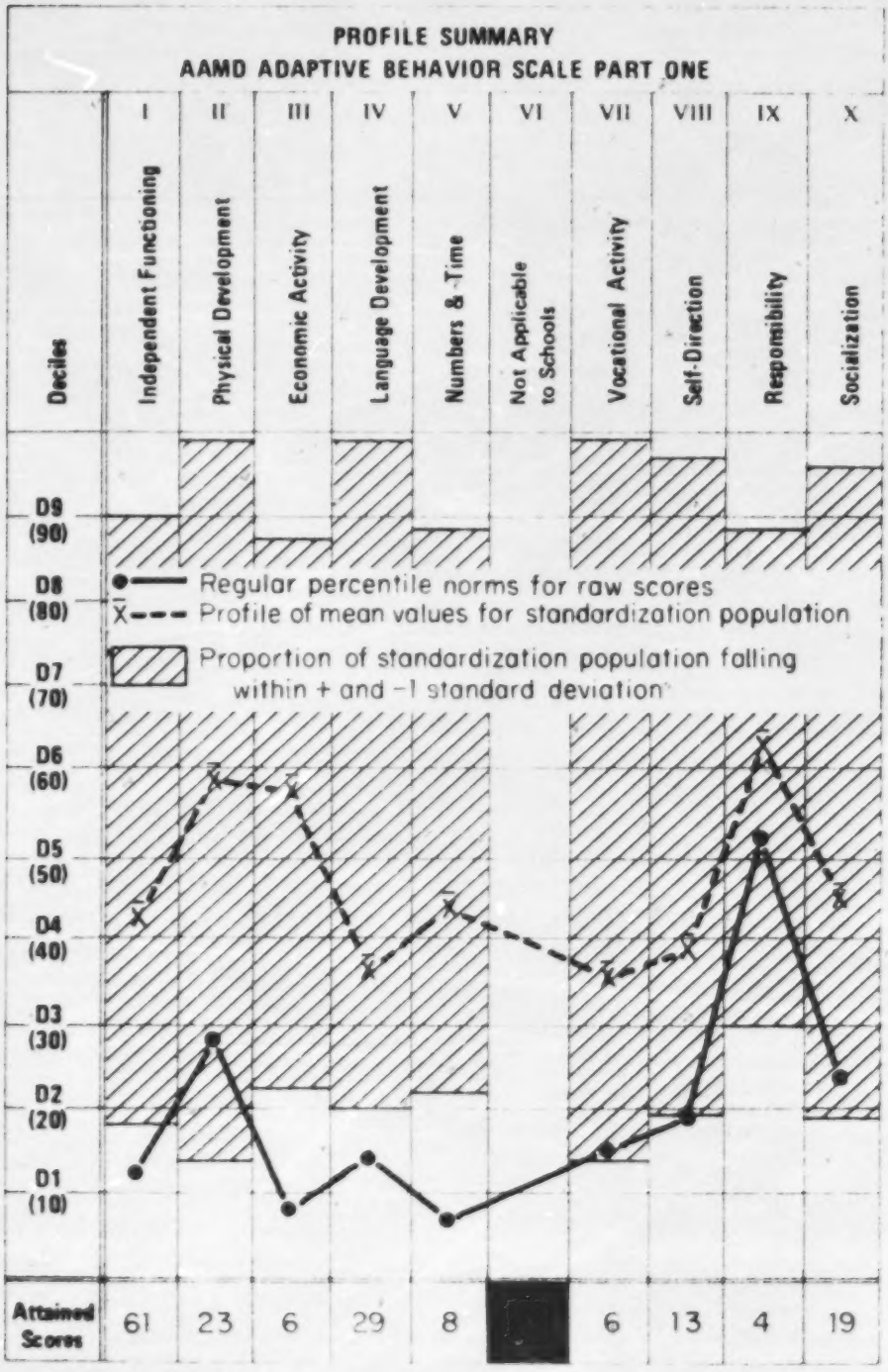

Figure 1

the 15th percentile for all domains associated with the functional autonomy dimension described above with the exception of Physical Development.

The shaded area on the profile outlines the proportion of subjects in the reference group who fall between $\pm$ one standard deviation from the mean domain score of the group. Some distributions of raw score on the Adaptive Behavior Scale such as that for Physical Development and those on Part Two are skewed; therefore, percentile distributions were selected in favor of standard score distributions because such reference data retain the features of the domain distribution.

Physical Development provides a rough indication of whether or not a child's sensory and motor functioning are within normal limits. The Manual suggests that a useful rule of thumb for interpreting this score is to use a raw score of 20 as an indicator of normal physical development. Raw scores on this domain indicate whether the presence of physical handicaps should be taken into consideration when interpreting a profile. Raw scores of 20 or higher usually mean a normal to perfect range of physical development. Approximately 90% of regular class pupils and 70% of EMR children fall in this category. A raw score of 10 or lower indicates the presence of one or more serious physical handicaps and referral to specialists for evaluation of these problems would be mandatory. Scores between 10 and 20 suggest possible physical handicaps and the items on the Physical Development domain should be examined to identify areas of sensory or motor functioning which should be considered in the interpretation of other domain scores. The Physical Development domain score (percentile) as presented on the profile in Figure 1, indicates that EFG's sensory and motor development is normal for his age.

To facilitate interpretation of the percentiles, the shaded area out-

lines a range of functioning that is clearly within average limits for the group. Individual scores within this range can be compared to the mean of the reference group in percentile ranks (the heavy dash line) and one can estimate the relative standing of the child with age peers as a percentile value below or above the norm and within or without a critical score range.

Pupil EFG's scores on the Functional Autonomy domains fall below the critical range indicated by the shaded area. This child does not have, however, any physical problems which would interfere with his ability to acquire higher levels of adaptive behavior on these domains. The low level of his functioning on these domains indicates that he may be eligible for special education placement. His performance is at a somewhat higher, though still borderline level on the domains associated with social responsibility. A report summarizing his adaptive behavior functioning on Part One of the Scale would indicate that with respect to independence skills, his behavior is seriously below that of regular class pupils of his age, but his ability to initiate and carry out tasks and get along well socially with peers, while also at a low level, is within an acceptable range of functioning for regular class pupils. His performance also can be compared with pupils in EMR programs.

Figure 2 shows EFG's profile with respect to the EMR reference group. As one can see, his performance varies around the domain means for the EMR pupils of his age. His adaptive behavior is typical of those pupils who were assigned to EMR classes in the standardization population, 96 or 97% of whom were eligible on the basis of the measured intelligence criterion. What decisions should be made? On the average, nine out of 10 regular class pupils have acquired higher level adaptive behavior skills than EFG

Identification E. F. G. using EMR norms

Age 9 years 6 months

Sex Male

Date of Administration 1-25-77

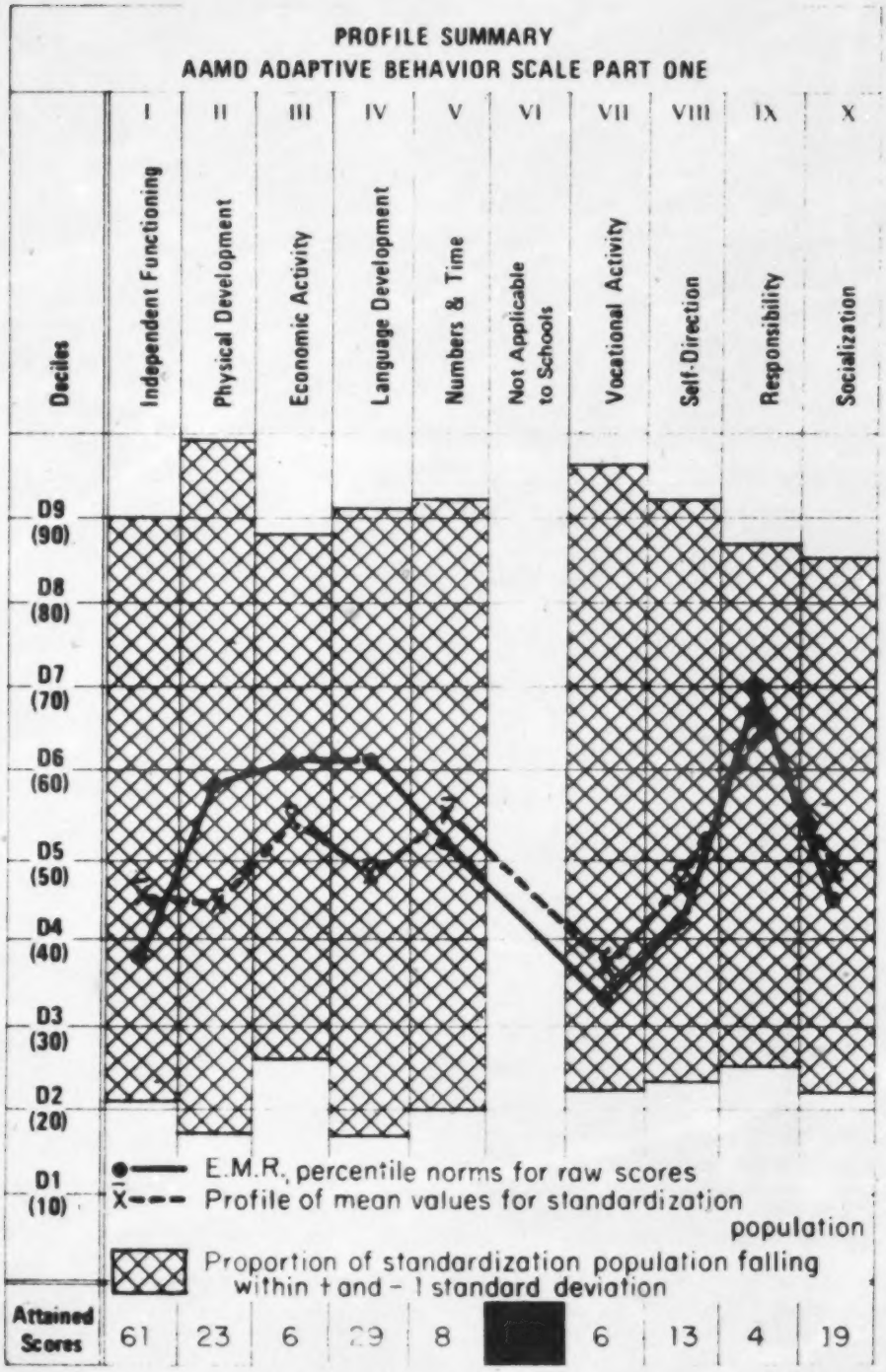

Figure 2

on all areas except those related to social and personal responsibility. EFG's performance in some areas indicates that he needs special education assistance to improve his functional independence skills and the acquisition of knowledge necessary to perform independently. He is responsible and probably would carry out assignments given to him as well as some other children in a regular class. If his measured intellectual functioning is also marginal, consideration should be given to continuing him in a regular class assignment with special instruction either within the regular class or in a resource room.

The degree to which a child can succeed in a regular class program can be inferred from information provided by domain score percentiles on Part Two of the Scale. Figure 3 shows EFG's profile with respect to the regular class norms. From this chart, one can determine that EFG is in a critical range (outside the shaded area) with respect to Anti-Social Behavior, Hyperactive Tendencies, and Psychological Disturbances. One now can predict that his behavior in a regular classroom would be judged by the teacher to be hyperactive and antisocial and that even though he demands lots of teacher attention, when criticized he responds defensively and feels persecuted. EFG's interpersonal problems exceed the average for children in the EMR norms (see Figure 4) so that even in a special education class group he would have more than the average degree of difficulties in these areas.

The information from an analysis of adaptive behavior profiles should never be used as a single source of information for determining eligibility for special education assistance. Parents can be interviewed and complete a complementary adaptive behavior rating. Consistencies between perceptions of the child at school and at home, and evidence from other areas in the

Identification E. F. G. using regular norms

Age 9 years 6 months

Sex Male

Date of Administration 1-25-77

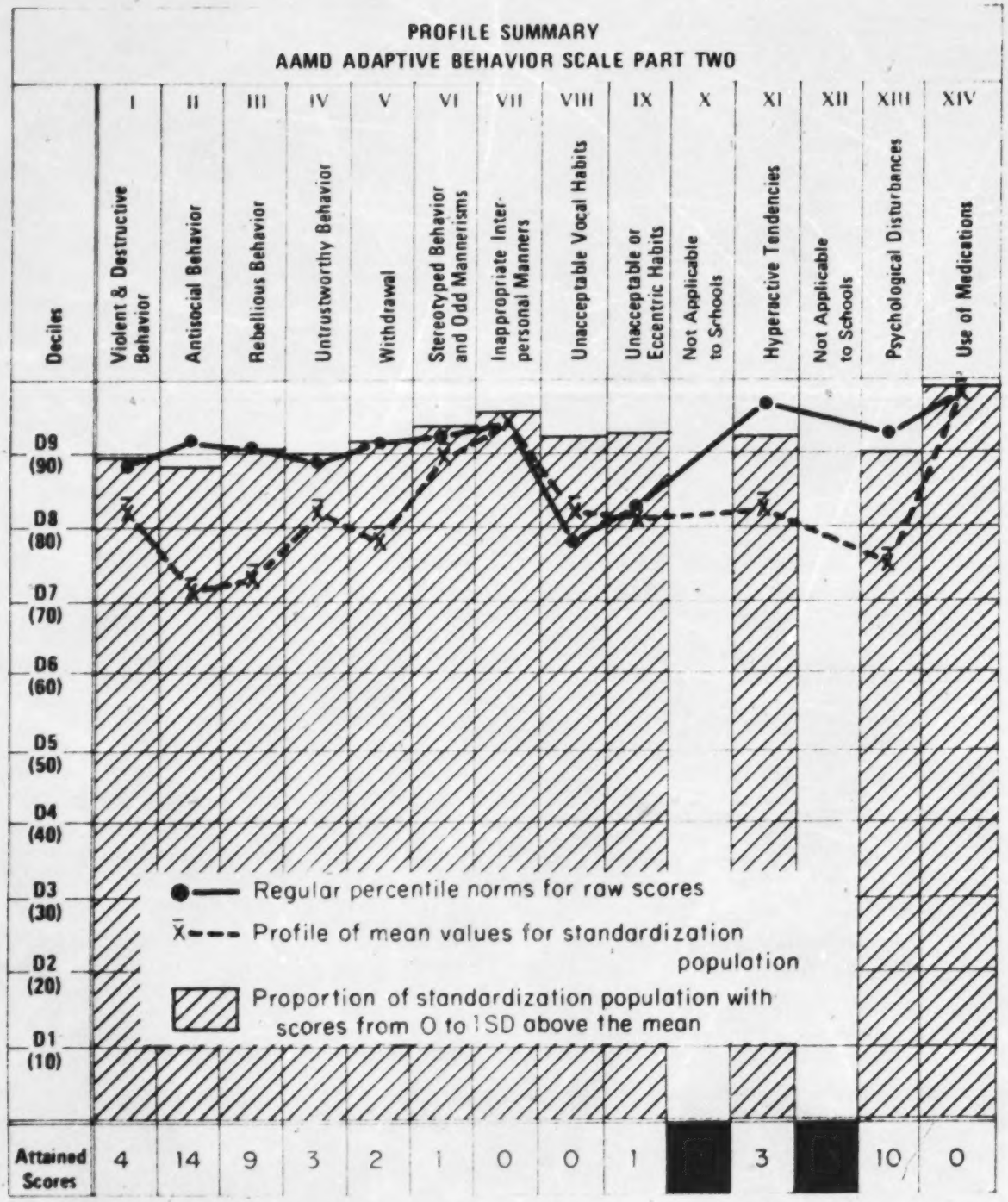

Figure 3

Identification E.F.G. using EMR norms

Age 9 years 6 months

Sex Male

Date of Administration 1-25-77

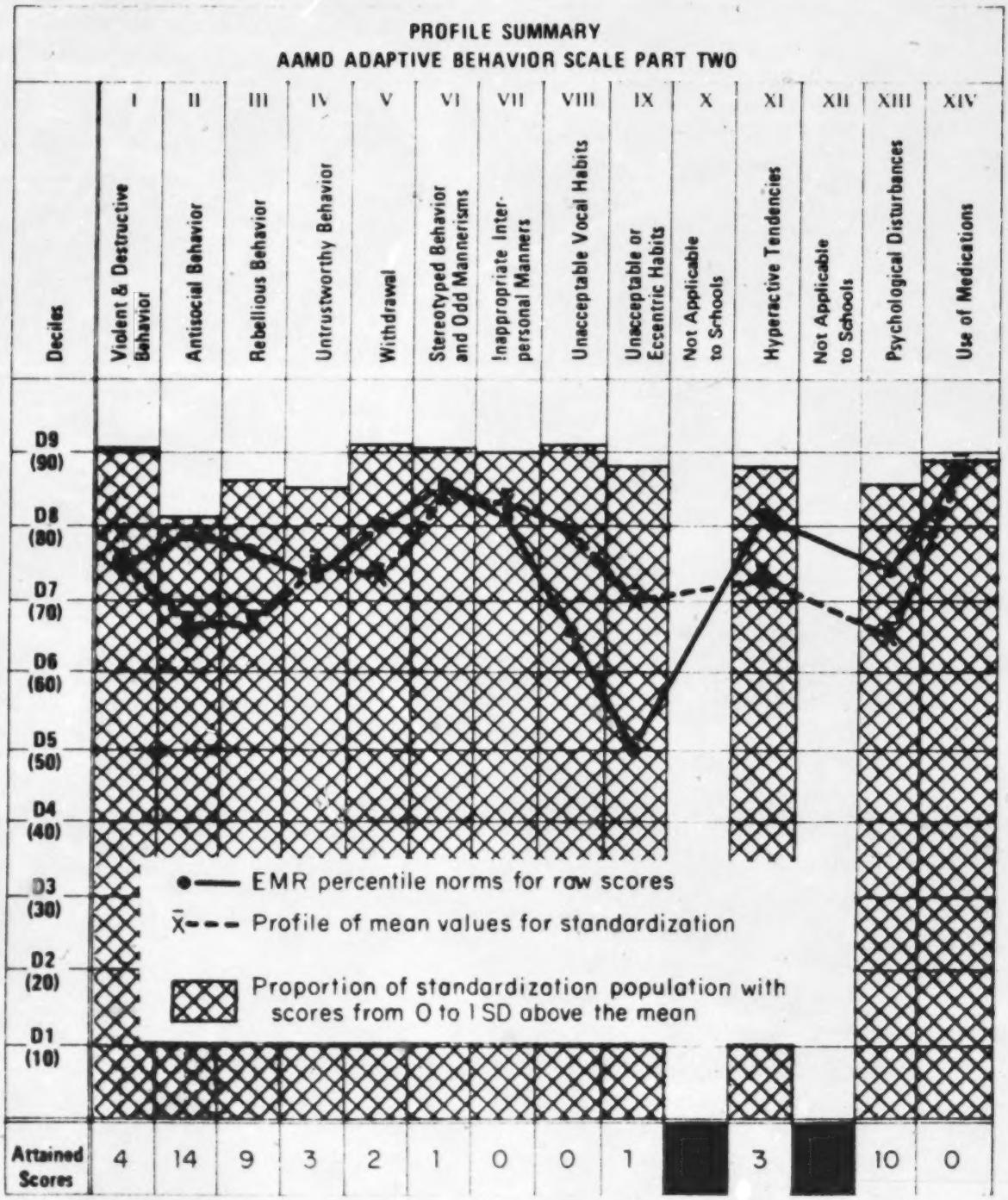
PROFILE SUMMARY
AAMD ADAPTIVE BEHAVIOR SCALE PART TWO
Deciles
I Violent & Destructive Behavior
II Antisocial Behavior
III Rebellious Behavior
IV Untrustworthy Behavior
V Withdrawal
VI Stereotyped Behavior and Odd Mannerisms
VII Inappropriate Interpersonal Manners
VIII Unacceptable Vocal Habits
IX Unacceptable or Eccentric Habits
X Not Applicable to Schools
XI Hyperactive Tendencies
XII Not Applicable to Schools
XIII Psychological Disturbances
XIV Use of Medications
D9 (90)
D8 (80)
D7 (70)
D6 (60)
D5 (50)
D4 (40)
D3 (30)
D2 (20)
D1 (10)
EMR percentile norms for raw scores
X̄ Profile of mean values for standardization
Proportion of standardization population with scores from 0 to 1 SD above the mean
Attained Scores
4 14 9 3 2 1 0 0 1 3 10 0

Figure 4

case study can be sought for confirmation of the adaptive behavior assessment. In the case of EFG, parents, teachers, and psychologist will have to collaborate to determine where the child will learn most efficiently and what combination of regular and special education program will provide the best set of opportunities for improving his level of functioning. Once the pattern of regular and special instructional settings has been determined, the next and most crucial step is the development of an education plan.

Developing Individual Educational Plans from the Assessment of Adaptive Behavior

In the previous section, the author pointed out that there is no rule which will permit the psychologist to state with assurance that below a particular cut-off point a child conclusively can be considered to have retarded adaptive behavior. Psychologists, however, can specify the probability that a true measure will lie between range of obtained scores. Since studies have shown that the comprehensive set of items associated with adaptive behavior is not measuring a single unitary trait, use of one overall measure of adaptive behavior is not warranted. The Adaptive Behavior Scale, therefore, provides measures of different types of social functioning rather than a summative score. Integrating the results of the Scale into a diagnostic perspective requires professional judgment in the interpretation of the child's social functioning in the context of his school, home, and cultural environment. As the AAMD Manual on Terminology and Classification in Mental Retardation points out, "neither IQ nor adaptive behavior are sufficient for individual diagnosis or classification purposes." Applied as part of a comprehensive assessment procedure and supplemented with clinical judgment and interdisciplinary and parental collaboration,

the use of the Adaptive Behavior Scale will enable the educator to appraise the relative social functioning of the child and to make a determination of the appropriateness of educational placement options.

The author believes that finding the program where the child can learn best is infinitely more important than programming the child through a labeling ritual. Even if we could all agree on what evidence warrants the conclusion that a child who functions as a mildly retarded child is truly mentally retarded, what help have we given the child when all our energies are expended in the labeling effort? And if we discover that a large number of youngsters who are functioning as mildly retarded children do not qualify for the label, how have we helped them by concluding that the label does not apply?

Many of us involved in the assessment, placement, and programming processes for handicapped children are turning their attention away from labeling toward planning. If we can be sure that the child's and parents' rights to due process are ensured, that to the best of our knowledge and skills a child demonstrates that he or she is eligible for special education placement, and that we make provision for regular evaluation of the child's status, then our professional objectives should turn toward the educational planning process.

One of the main strengths of the Adaptive Behavior Scale is that it gives an individualized profile which can be used to develop an appropriate educational program for the pupil. The profile of a child's various adaptive behaviors describes his/her status on several domains, such as Independent Functioning, Language Development, and Responsibility. Because educational goals for all handicapped children always include the development of independent functioning and personal and social responsibility,

the profile provides the basis from which a program of remediation can be developed. This is a crucial enterprise because children in some public school classes for the mildly retarded may not have been taught or helped to develop beyond their assessed deficiencies. Consequently, in such instances, the degree to which an extensive program of individualized behavioral instruction would alter a child's abilities and expectations for personal and vocational success can never be known. As teachers, parents, and psychologists collaborate to develop educational plans, it is important to keep in mind that educational plans must be individualized, that is, children with similar profiles may require quite different educational programs. Moreover, the nature of a child's adaptive behavior must be considered with respect to expectancies of both the school and environment and prior opportunities to acquire particular aspects of adaptive behavior functioning.

As the teacher and psychologist refer to the child's profile and consider its educational implications, they can view the results as specifying an individualized set of possible educational objectives. The items within each domain specify a set of adaptive behaviors which can be acquired by normal and most retarded children during their developing years. The score received on a domain, when compared with norm group, indicates how well individual children are functioning with respect to age level peers of similar educational status. When a score on a domain is lower than would be desirable for a particular child, reference to his/her ratings on each of the individual items comprising that domain suggests a set of instructional or learning objectives which can form the basis of an individual educational plan.

Educational Planning Considerations Regarding Part One Domains

The Part One domains are Independent Functioning, Physical Development,

Economic Activity, Language Development, Numbers and Time, Domestic Activity (which is not included in the public school version), Vocational Activity, Self-Direction, Responsibility, and Socialization. Several of these domains such as Independent Functioning, Vocational Activity, and Self-Direction focus on the acquisition of skills which promote independence, responsibility, or autonomy. To increase competence in these areas, children should be provided with opportunities to be exposed to new experiences that enhance growth and to make choices and decisions consistent with their capabilities. In all cases the activities which are provided should be concrete, well-defined, and have clearly specified reinforcement contingencies.

Children can be exposed to activities and information in which they have the opportunity to attempt and to succeed on tasks requiring new levels of competence for performing regular and routine operations well. Continued responsibility for the performance of newly learned behaviors increases independence and feelings of success.

To achieve competence on other activities within the domains of Independent Functioning, Vocational Activity, and Self-Direction involves the need to provide children with opportunities to make choices and decisions among several equivalent alternatives consistent with their capabilities. In these instances, cause and effect for each alternative should be demonstrated where possible. The choice to be made can be limited initially to presentation of two options such as "Would you like to play on the bars outside with the other children or would you rather stay inside with me and work on your project?" Both should be carefully delineated and have their consequences illustrated. As the child learns to choose and follow through from these experiences, the changes for making more decisions with more complex options and opportunities for responsibility can be increased.

Other domains focus on concepts or activities which require learning specific knowledge or information, like the domains of Number the Time Concepts and Economic Activity. By introducing concepts, activities, and materials related to these domains in a concrete way, the child can learn the concept and experience the process. Actually going to a store and buying something and paying for it is a useful, concrete way of teaching concepts and procedures to children who are unable to deal with abstractions. The experience may have to be repeated many times for children to be able to incorporate it successfully in their behavior repertoire. In many of these types of activities, it is important for teachers to consider the value of their own behavior as a model for the children to emulate.

Still other domains such as Language Development and Socialization involve both learning and developmental considerations. In establishing an educational plan for children in these behavioral domains, teachers and psychologists should appraise the child's current level of development, making assessments of his/her cognitive, language, and social development, if necessary, before establishing an appropriate set of educational goals for him/her. Then, by offering a wide variety of opportunities for self-expression or social interaction, the teacher can observe evidence of new levels of maturation and can determine when the readiness of the child to make the next step in learning has occurred.

Matching Educational Planning Recommendations on Part One Domains to Available Curricula

The Texas State Learning Resource Center (Note 3) provided an excellent example of the curriculum materials available to assist the teacher in carrying out educational planning recommendations. It has catalogued instructional packages with the items from Part One domains. With these

materials at hand, those collaborating to provide and evaluate instruction for handicapped children can select from the most appropriate resources from those which are identified. The instructional guidelines suggested by the Texas document should encourage others who use the Scale to create similar curriculum packages based on local needs and resources.

Educational Planning Considerations Regarding Part Two Domains

The behaviors which are assessed on Part Two of the Adaptive Behavior Scale are related to social and emotional development and, as noted earlier, the more frequent the behaviors and the higher the child's score, the more likely the child is to be perceived as a problem or as a disturbance and the greater the probability that he is experiencing serious emotional distress. When evidence exists to assume a child's adjustment reflects a severely disrupted system and that he is a threat to himself or others, the teacher should review the case with the psychologist and they should consider a referral to an appropriate source for further evaluation and treatment.

Some of the behaviors described within the domains on Part Two lend themselves to improvement through a well-structured program of classroom management where improved performance is monitored and consistently rewarded. An educational program such as the one proposed by Hewett (1968; Hewett & Forness, 1974) is an excellent regimen for assisting educationally retarded and emotionally handicapped pupils to function effectively in a classroom setting while providing them with academic learning experiences within their capabilities.

Evaluation of Individual Educational Plans

At the conclusion of the review of the information provided by the Profile Summary Sheet, the teacher, in collaboration with the psychologist, will have developed a set of learning and behavioral objectives for the

individual child. These objectives will vary from child to child since they are dependent on individual pupils' developmental levels, their current level of academic and social functioning, and the appropriateness of the objectives for their particular educational program. A procedure for evaluation of the educational plan should be developed concomitantly with a time schedule for conducting it. Readministration of the Adaptive Behavior Scale may be considered as the most appropriate method for appraising the child's progress. However, requesting adaptive behavior ratings from other adults in the school who have contact with the child, getting a third-party assessment, or conducting an interview with both parents of the child provide additional information by which to evaluate the effectiveness of the child's program.

Conclusion

We undertook the study of adaptive behavior of normal and handicapped public school children to determine whether a modification of the AAMD Adaptive Behavior Scale could provide a valid and reliable measure of adaptive behavior functioning. The summary of our research presented here provides ample evidence of the usefulness of the scale for obtaining an evaluation of the child's adaptive behavior functioning, and the validity and reliability of its measures. Our belief is that the scale will be an indispensable adjunct to the assessment of intellectual functioning and, as part of a comprehensive case study, the Scale can provide invaluable information in developing educational plans to improve the adaptive behavior skills of the child at school and at home.

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Footnotes

[1] We included a small representative sample of pupils assigned to programs for EH children. The requirement for classification into this program was that the child have serious learning deficiencies and be within the normal range of intelligence.